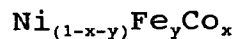


WHAT IS CLAIMED IS:

Sub
a1
1. A vehicle-mounted magnetoresistive sensor element comprising plural plies of a magnetic layer and plural plies of a nonmagnetic layer, said magnetic layer and said nonmagnetic layer being alternately laminated with each other, said magnetic layer mainly containing Ni, Fe and Co, and said nonmagnetic layer mainly containing Cu,

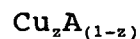
wherein said magnetic layer has a composition represented by the following formula:



where x and y satisfy the following conditions:

$$x \geq 0.7, y \leq 0.3, \text{ and } (1-x-y) \leq 0.15;$$

and said nonmagnetic layer has a composition represented by the following formula:



where A is an additional element other than Cu, and $z \geq 0.9$;

wherein the thickness t_m (angstrom) of said magnetic layer and the thickness t_n (angstrom) of said nonmagnetic layer satisfy the following conditions:

$$10 < t_m < 25, \text{ and } 18 < t_n < 25;$$

and wherein, when a guaranteed storage temperature of said magnetoresistive sensor element is $T^\circ\text{C}$, the magnetoresistive sensor element has been previously subjected to heat treatment at a temperature equal to or

0996580.13001

higher than $T^{\circ}\text{C}$.

2. A vehicle-mounted magnetoresistive sensor element according to claim 1, wherein when a unit comprising a laminate of one ply of said magnetic layer and one ply of said nonmagnetic layer is defined as a repeating constitutional unit, the number N of said repeating constitutional units in the magnetoresistive sensor element satisfies the following condition:

$$10 \leq N \leq 40$$

3. A vehicle-mounted magnetoresistive sensor element according to claim 1, further comprising a substrate and a buffer layer, said buffer layer being sandwiched between said substrate and said magnetic layer or being sandwiched between said substrate and said nonmagnetic layer, wherein the thickness t_b (angstrom) of said buffer layer satisfies the following condition:

$$10 < t_b < 80$$

4. A vehicle-mounted magnetoresistive sensor element according to claim 1, wherein the heat treatment is performed at a temperature of equal to or higher than $(T+50)^{\circ}\text{C}$.

Q1
(int)

09996580.113001

5. A vehicle-mounted magnetoresistive sensor element according to claim 4, wherein the heat treatment is performed at a temperature equal to or higher than 200°C and lower than or equal to 300°C.

0996580.13001